



## PERMETHRIN FACTORY-TREATED ARMY COMBAT UNIFORMS

FACT SHEET 18-076-0713

The key to preventing diseases transmitted by insects and other arthropods (such as malaria and West Nile virus by mosquitoes and Lyme disease by ticks) is the simultaneous use of all elements of the DoD Insect Repellent System. Wearing permethrin-treated uniforms is a key component of this system. Beginning in FY 2013, Army Military Clothing Sales stores will sell and initial entry Soldiers will be issued Army Combat Uniforms (ACUs) that have been factory-treated with permethrin (ACU Permethrin). The uniform will also be available to Army National Guard, Army Reserve, and the Senior/Junior Reserve Officers Training Corps. A single factory treatment with permethrin offers significant benefits to the ACU Permethrin wearer including increased protection against the bites of mosquitoes, flies, midges, ticks, and chiggers for the life of the uniform. There is no wear out date for non-permethrin treated ACUs.

### **Q. Why is it so important that all of the ACUs worn by Soldiers are treated with permethrin?**

A. The Army's policy is to provide the best protection for our Soldier's health and well-being. With the introduction of the ACU Permethrin, the Army is introducing a product that will enhance Force Health Protection and Readiness. The ACU Permethrin protects Soldiers from insect and tick-borne diseases, while in garrison, training, and non-combat deployed environments, worldwide. Wearing permethrin-treated uniforms is a key component of the DoD Insect Repellent System. Soldiers wearing an ACU Permethrin should continue to properly protect themselves against insect bites and diseases by wearing the uniform with sleeves rolled down, closing all openings in clothing that might let insects in, tucking pants into boots and undershirt into pants, and keeping the uniform loose. For over 20 years, the DoD Insect Repellent System has been proven to be highly effective in preventing biting insects from becoming an annoyance or making Soldiers sick.

### **Q. Is the ACU Permethrin safe to wear everyday as my duty uniform?**

A. The ACU Permethrin is factory-treated with permethrin, a repellent that belongs to the synthetic pyrethroid family of insecticides. The effects of permethrin on human health have been extensively studied. There are no known adverse health risks associated with wearing the ACU Permethrin. As recently as 2009, the United States Environmental Protection Agency (EPA) completed a human health risk assessment review for permethrin treated clothing. The risks to people wearing treated clothing, as well as people coming into contact with people wearing the clothing are below the levels that the EPA estimates could potentially cause adverse health effects.

### **Q. Why is factory treatment of ACUs with permethrin an improvement?**

A. The ACU Permethrin eliminates the need for Soldiers to ever think about treating their uniforms. The factory treatment uses special binders to ensure that enough permethrin is retained in the uniform's fabric to protect against mosquito, tick, fly, chigger, and midge bites for the lifetime of the uniform. Factory treatment guarantees that a safe and effective amount of permethrin is precisely applied to each ACU Permethrin. The guesswork as to who has and who does not have a permethrin treated uniform is removed. Factory treatment mitigates the potential risk of increased exposure by eliminating the need for Soldiers to apply concentrated liquid permethrin products. Factory treatment also eliminates environmental concerns associated with the use and disposal of field-applied permethrin products.

### **Q. How will Soldiers know if their ACUs have been permethrin factory-treated?**

A. The ACU Permethrin can be distinguished by looking for hang tags attached to the uniform when purchased/issued and factory sewn-in labels. Both will indicate that the uniform has been factory-treated with permethrin. An ACU Permethrin looks identical to a nontreated ACU on the outside. The permethrin treatment is invisible, odorless, colorless, and does not change the feel of the uniform.



Labels sewn on the inside of both the ACU Permethrin trousers and blouse identify which garments have been factory-treated with permethrin. These labels include EPA laundering instructions.

**Q. Are there any special instructions for taking care of my ACU Permethrin?**

**A.** Research has shown that the ACU Permethrin provides 99-100% bite protection out to 50 launderings (the expected lifetime of the uniform). Beyond this point, the uniform still provides bite protection, but not as much. Do not commercially hot press, use bleach/bleach alternatives, fabric softener, starch or dry clean. Even a single dry cleaning will remove most, but not all of the permethrin, and significantly reduce the bite protection. Dry cleaning will also fade the ACU Permethrin and weaken the fiber strength, causing it to become unserviceable sooner. The ACU Permethrin can be put in the dryer. The ACU Permethrin cannot be retreated with permethrin.

**Q. Will the permethrin wash off my ACU Permethrin and transfer to other clothes if I launder them together?**

**A.** With the modern technology used to factory-treat ACUs with permethrin, only a very small amount of repellent will leave the uniform when laundered. In studies conducted to date, only tiny amounts of permethrin residues have been transferred to untreated clothing during laundering. The EPA label states that garments that are permethrin treated, whether military or civilian, individually or factory-applied, be laundered separately from other garments. Soldiers should follow instructions on the EPA label and hang tag for care and use in a field and combat environment.

**Q. Should I be concerned about wearing my ACU Permethrin around my family and pets?**

**A.** As the only repellent that is EPA-registered to treat clothing, permethrin has accumulated an excellent safety record with Soldiers since the early 1990's. As recently as 2009, the EPA conducted risk assessments with permethrin, focusing on the special sensitivities of infants and children to pesticides. One risk assessment investigated toddlers and youth wearing clothing treated with permethrin at levels identical to that in the ACU Permethrin. The EPA concluded that all of the potential adverse health risks, including cancer and non-cancer risks were below the Agency's level of concern. Since 2003, well-known companies that market outdoor gear and clothing have offered permethrin-treated clothing for toddlers, children, and adults. While some permethrin products can be potentially hazardous to some pets, especially when not applied in accordance with the label, permethrin treated clothing has not shown to cause any danger to household pets. The process that binds the repellent to the fabric only releases enough permethrin to repel/kill insects but does not release enough to cause danger to pets.

**Q. What about if I am pregnant or nursing? Will wearing my ACU Permethrin harm my baby?**

**A.** While there are no indications of adverse health effects to mother and child from permethrin treated clothing, pregnant, nursing Soldiers, and female Soldiers trying to get pregnant, are authorized to wear a non-permethrin treated ACU or maternity uniform. Soldiers must see their Health Care Provider to obtain a medical profile exempting the wear of a regular factory or individually permethrin-treated uniform. The medical profile allows the Soldier to special order a non-treated uniform through the Army Military Clothing Sales stores prior to or after the wear of a non-treated maternity uniform. The non-treated maternity ACU remains an Organizational Clothing & Individual Equipment item that can only be obtained through the Central Issuing Facilities.

**Q. Should Soldiers with hypersensitive skin or allergies be concerned with side effects from wearing an ACU Permethrin?**

**A.** The weight of evidence in the medical literature indicates that exposure to permethrin from wearing an ACU Permethrin is unlikely to cause skin sensitization, skin irritation, or other skin effects in humans. An advantage of permethrin-treated uniforms is that the binder system used by the factory retains more permethrin in the fabric, resulting in Soldiers being exposed to a much lower level of permethrin touching the skin compared to field-treated uniforms. Although there may be itching, numbness, tingling, redness, or a rash associated with direct application to the skin or scalp of permethrin containing lotions, creams, solutions, and shampoos, these reactions are not expected to occur with the ACU Permethrin. A few hypersensitive persons may show signs of skin irritation which could be attributed to the permethrin or laundry detergent used to wash the uniform. Soldiers should consult with a health care professional if they have concerns about reactions that may be associated with wearing the ACU Permethrin.

**Q. Whom can I contact if I have any questions or concerns about the ACU Permethrin?**

**A.** Contact your local Preventive Medicine Service/Army Public Health Command Regional Support Staff. E-mail inquiries concerning the DoD Insect Repellent System and ACU PERMETHRINs to the DoD Pesticide Hotline at [pesticide.hotline@amedd.army.mil](mailto:pesticide.hotline@amedd.army.mil) or via commercial telephone 410-436-3773 / DSN 584-3773 or from the Armed Forces Pest Management Board (AFPMB) website at [www.afpmb.org](http://www.afpmb.org). If the AFPMB website does not address specific concerns you may contact the AFPMB, Contingency Liaison Officer by calling DSN 295-8312/7476 or commercial 301-295-8312; or by writing to AFPMB, ATTN: Contingency Liaison Officer, US Army Garrison- Forest Glen, Armed Forces Pest Management Board, 2460 Linden Lane, Bldg 172, Silver Spring, MD 20910.



A properly worn ACU Permethrin is a Soldier's first line of defense against flying and crawling disease vectors such as mosquitoes (top) and ticks (middle), as well as horse flies (bottom) and other nuisance biters.